Butte Creek Upstream from Butte Basin

SPFC facilities for Butte Creek include a diversion structure on Little Chico Creek, a diversion channel from Little Chico Creek to Butte Creek, and levees along the diversion channel and along Butte Creek. The facilities are intended to reduce flood risk to Chico, Durham, adjoining agricultural land, Highway 99, and several railroads and county roads. With the exception of levees along the downstream 8 miles of Butte Creek, levees were originally built by local interests and set back or enlarged to project standards by USACE. The facilities are maintained by DWR through Maintenance Area 5.

- The ungated Little Chico Diversion Structure (see O&M Manual SAC516) was designed to limit flood flows through Chico and route excess flood flows to Butte Creek. Upstream from the diversion, Little Chico Creek has a design capacity of 6,700 cfs, based on the O&M manual. The design capacity of Little Chico Creek downstream from the diversion is about 2,200 cfs. The design capacity of the 3-mile-long diversion channel to Butte Creek is about 3,000 cfs with 3 feet of freeboard. According to the O&M manual, the diversion channel can carry 4,500 cfs with no freeboard. The diversion channel has intermittent levees along the right bank (see O&M Manual SAC516).
- The design capacity of Butte Creek downstream from the confluence with the Little Chico Creek Diversion Structure is 27,000 cfs with 3 feet of freeboard, based on the O&M manual. According to the O&M manual, the channel can carry 40,000 cfs with no freeboard. Right- and left-bank levees (see O&M Manuals SAC515 and SAC516) extend about 15 miles downstream to the Butte Basin.

Cherokee Canal

SPFC facilities (see O&M Manual SAC519) consist of levees along Cherokee Canal, the lower reaches of Cottonwood Creek and Gold Run Creek, and irrigation and drainage structures from Butte Basin to high ground. The facilities are intended to provide reduced flood risk to adjacent agricultural lands, area transportation facilities, and irrigation canals. The facilities are maintained by DWR through Maintenance Area 13.

- The right-bank levee along Dry Creek and Gold Run Creek extends about 5.2 miles from high ground to the confluence with Cottonwood Creek. The left-bank levee extends about 3.5 miles from high ground to the confluence with Cottonwood Creek. The design capacity of this reach is about 8,500 cfs with 3 feet of freeboard, based on the O&M manual.
- The lower reach of Cottonwood Creek has a design capacity of about 3,500 cfs. Right- and left-bank levees, each about 1.3 miles long, extend from high ground to the connection with the Cherokee Canal levees.
- Downstream from Cottonwood Creek, the Cherokee Canal has a design capacity varying from 11,500 cfs to 12,500 cfs, based on the O&M manual. The right-bank levee extends about 14 miles. The left-bank levee is about 17 miles long. About midway along this reach, to allow flow to enter from the east, the left-bank levee is broken into two parallel segments for approximately 1.5 miles.

Butte Basin (including Butte Creek and Butte Slough)

SPFC facilities within the Butte Basin include channel improvements along lower Butte Creek and the Butte Slough Outfall Gates to the Sacramento River.

Water from Butte Creek (see O&M Manuals SAC153, SAC515, and SAC516), the Cherokee Canal (see O&M Manual SAC519), and other small tributaries from the north and east enter the Butte Basin. Flood flow from the Sacramento River enters the upper end of the Butte Basin (see discussion in Section 3.2.5, Sacramento River Watershed) at three overflow areas below Chico Landing on the Sacramento River.

Flood flow to the Butte Basin from the Sacramento River also occurs from the Moulton Weir (see O&M Manual SAC154) and from the Colusa Weir (see O&M Manuals SAC155 and SAC502) (see Figure 3-10). The weirs are described in Section 3.2.5. The Butte Basin provides about 1 million acre-feet of transitory storage at flood stage.

SPFC facilities in the Butte Basin are described below:

- Downstream from the Butte Creek levees, channel improvements (see O&M Manual SAC153) extend about 13 miles along lower Butte Creek to the Gridley-Colusa Road. The channel improve-

ments and clearing allow a flow of about 2,500 cfs without extensive overbank flooding. The improvements along this reach also included replacing the old Howard Slough Diversion Structure with a new structure. The diversion structure is located across Butte Creek about 0.5 miles downstream from the bifurcation with Howard Slough. The O&M manual states that the nearby McGowan-Harris Diversion Structure, which was constructed by local interests, is not part of the project, but must be operated in conjunction with the Howard Slough Diversion Structure. Both of these diversion structures are for irrigation and have no flood management role. However, DWR does inspect these structures to be sure that flashboards are removed during the nonirrigation season to minimize their impact on flood stage.

- The Butte Slough Outfall Gates (see O&M Manual SAC161) to the Sacramento River control passage of floodwaters from the Butte Basin to the Sacramento River at a maximum flow of about 3,500 cfs, based on the O&M manual. The gates also allow passage of Butte Slough drainage water to the Sacramento River during the irrigation season.

Flood flows in the Butte Basin flow through Butte Slough and into the Sutter Bypass about 8 miles downstream from the Butte Slough Outfall Gates.

Butte Slough

SPFC facilities include the right-bank levee (see O&M Manual SAC134) from the Butte Slough Outfall Gates to the head of the Sutter Bypass. The levee, about 7.3 miles long, is intended to reduce flood risk to RD 70 and is maintained by RD 70. The levee was constructed by local interests and reconstructed to adopted grade and section by USACE. Based on the O&M manual, the design capacity of this reach is 185,000 cfs at the upstream end and 178,000 cfs with 6 feet of freeboard at the beginning of the Sutter Bypass.

Sutter Bypass

SPFC facilities along the Sutter Bypass and tributaries include levees and pumping plants. The levees along the Sutter Bypass are about 4,000 feet apart.

- From Long Bridge, just upstream from Highway 20 to the Wadsworth Canal, SPFC facilities include levees and a pumping plant. This reach has a design capacity of 178,000 cfs with 6 feet of freeboard, based on O&M manuals. The right-bank levee (see O&M Manuals SAC133 and SAC134) is about 4.5 miles long and is intended to reduce flood risk to the town of Meridian and agricultural land in RD 70 and RD 1660. The left-bank levee (see O&M Manual SAC135) is about 4 miles long and is intended to reduce flood risk to adjacent agricultural land south of the town of Sutter and to Yuba City. Pumping Plant No. 3 (see O&M Manual SAC159) discharges water to the Sutter Bypass from the area located behind the levee. The plant has a capacity of about 180 cfs. In addition, reverse gravity flow water from the bypass provides irrigation water to adjacent agricultural areas.
- SPFC facilities along the Wadsworth Canal and intercepting canals are levees (see O&M Manual SAC135). Based on the O&M manual, the design capacity of the Wadsworth Canal is 1,500 cfs with 6 feet of freeboard at the confluence with the Sutter Bypass, and reduces to 3 feet at River Mile 4. Both the right- and left-bank levees of the Wadsworth Canal are about 4.7 miles long. The Wadsworth Canal levees were built by local interests and reconstructed to adopted grade and section by USACE. At the upstream end of the Wadsworth Canal, the West Intercepting Canal and levees are about 1.4 miles long and the East Intercepting Canal and levees are about 3.8 miles long. The intercepting canals and levees were built by local interests, and a portion of the West Intercepting Canal was reconstructed by USACE. The levees are intended to reduce flood risk to adjacent agricultural land and to Yuba City. Maintenance is by DWR through Maintenance Area 3.
- From the Wadsworth Canal to the Tisdale Bypass, the Sutter Bypass has a design capacity of 178,000 cfs with 6 feet of freeboard, based on O&M manuals. The right-bank levee (see O&M Manual SAC133) is about 5.8 miles long. The levee is intended to reduce flood risk to adjacent agricultural lands and the town of Meridian, and is maintained by RD 1660. The left-bank levee (see O&M Manual SAC135) is about 6.5 miles long. The levee is intended to reduce flood risk to adjacent agricultural land and Yuba City, and is maintained by DWR through Maintenance Area 3. Pumping Plant No. 2 (see O&M Manual SAC159)

has a capacity of about 775 cfs. In addition, reverse gravity flow water from the bypass provides irrigation water to adjacent agricultural areas. Flow from the Tisdale Weir and Bypass (see O&M Manuals SAC129 and SAC135) enters the bypass from the west.

- SPFC facilities along the Sutter Bypass downstream from the Tisdale Bypass to the Feather River include levees and a pumping plant. The Sutter Bypass has a design capacity of 216,500 cfs with 6 feet of freeboard, based on O&M manuals. The right-bank levee (see O&M Manual SAC129) is about 12.2 miles long. The levee is intended to reduce flood risk to adjacent agricultural lands and is maintained by RD 1500. The left-bank levee (see O&M Manual SAC135) is about 12.9 miles long. The levee is intended to reduce flood risk to adjacent agricultural land and is maintained by DWR through Maintenance Area 3. Pumping Plant No. 1 (see O&M Manual SAC159) has a capacity of about 280 cfs from the area located behind the levee into the bypass. In addition, reverse gravity flow water from the bypass provides irrigation water to adjacent agricultural areas.

Joint Feather River/Sutter Bypass Channel to Sacramento River

As described under the Feather River watershed, from their junction, the Feather River and the Sutter Bypass flow in a joint channel to the Sacramento River. The design channel capacity of this reach is 416,500 cfs with 6 feet of freeboard, based on O&M manuals. This differs from the design capacity of 380,000 cfs estimated in the 1957 Revised Profile Drawings (USACE, 1957a). SPFC facilities include right- and left-bank levees about 1.3 miles apart. The right-bank levee (see O&M Manual SAC129), about 10 miles long, is intended to reduce flood risk to agricultural land and is maintained by RD 1500. The left-bank levee (see O&M Manual SAC141.1), about 7 miles long, is intended to reduce flood risk to agricultural land and is maintained by RD 1001. The left-bank levee was originally built by local interests and later enlarged or improved to project standards by USACE.

3.2.4 Yolo Bypass Watershed

Fremont Weir is located at the junction of the Sacramento River and the joint Feather River/Sutter Bypass channel. The Yolo Bypass receives the majority of its flow by spill over the Fremont Weir from the Sacramento/Feather/Sutter Bypass. The Yolo Bypass receives additional flow from smaller tributaries along its length and from the Sacramento River through the Sacramento Bypass. For this description, the Yolo Bypass watershed begins in the Colusa Basin. Figure 3-8 shows SPFC facilities in the Yolo Bypass watershed.

Colusa Basin

SPFC facilities in the Colusa Basin include a left-bank levee, outfall gates to the Sacramento River, an excavated channel and levees to the Yolo Bypass, and stone biotechnical levee protection.

- The left-bank levee (see O&M Manual SAC132) to the Colusa Basin Drain (Colusa Trough Drainage Canal) is about 36.2 miles long and serves as a back levee for RD 108 and RD 787. The design capacity of the levee is 20,000 cfs with 3 feet of freeboard, based on the O&M manual. There is no SPFC right-bank levee. Maintenance is performed by RD 108 and DWR through Maintenance Area 12. About 36 acres of stone biotechnical levee protection (see O&M Manual SAC132.1) were added in three sites along this reach.
- The Knights Landing Outfall Gates (see O&M Manual SAC162), also known as the Sycamore Slough Outfall Gates, is intended to reduce flood risk to the lower Colusa Basin from Sacramento River backwater, but provide drainage to the Sacramento River during low flow. The structure was originally built by local interests. Flap gates were added by USACE and DWR. Maintenance is conducted by DWR through Sacramento Maintenance Yard.
- Knights Landing Ridge Cut (see O&M Manual SAC127) provides drainage of the Colusa Basin Drain to the Yolo Bypass. Based on the O&M manual, the design capacity of the cut is 20,000 cfs with 3 feet of freeboard at the upstream end, and 6 feet of freeboard at the Yolo Bypass. The channel and its right- and left-bank levees are each about 6.4 miles in length. Maintenance is conducted by the Knights Landing Ridge Drainage District.

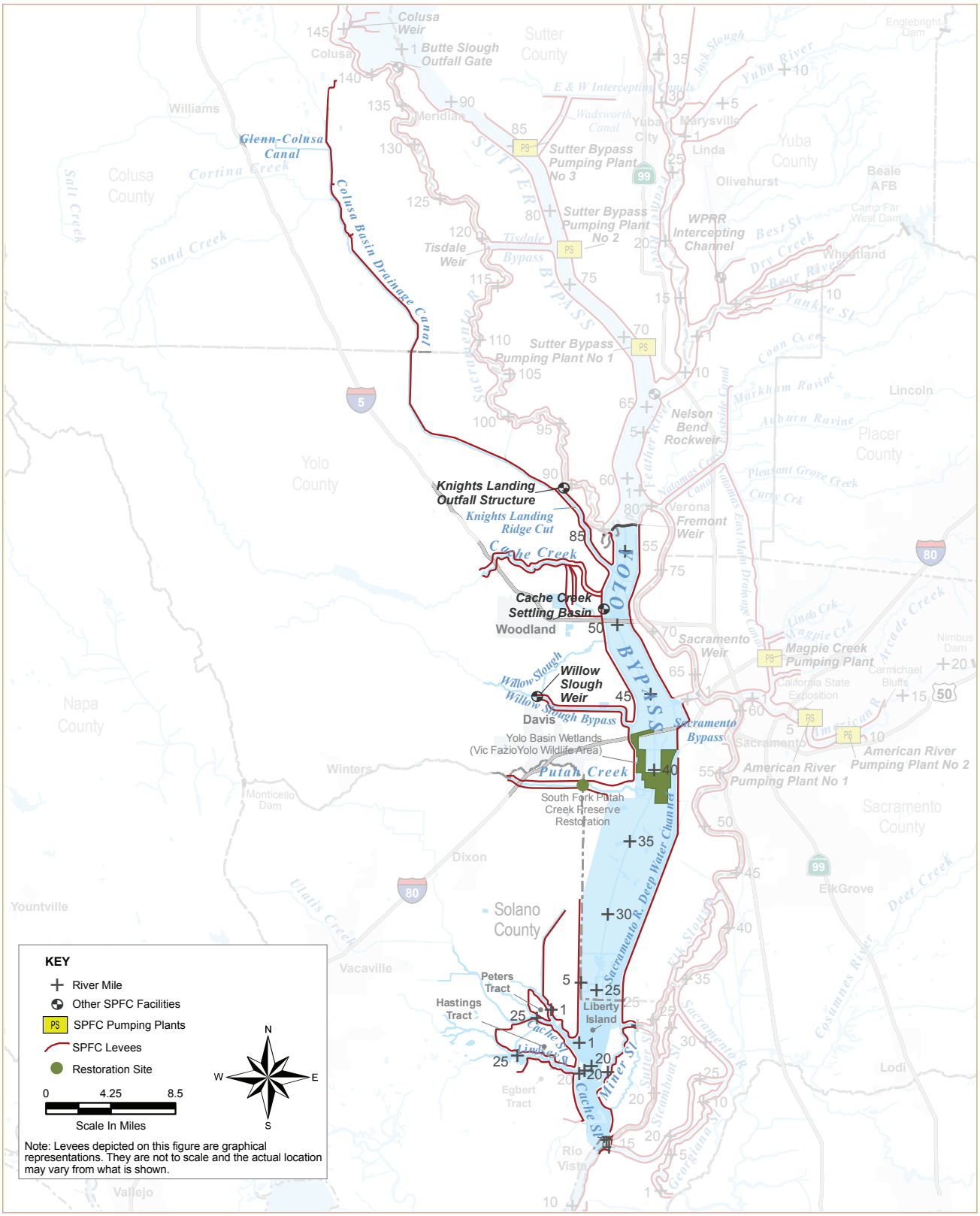

Figure 3-8. Yolo Bypass Watershed – State Plan of Flood Control Facilities Along the Yolo Bypass, Cache Creek, and Other Tributaries

Cache Creek

SPFC facilities on Cache Creek and tributaries are clustered in two separate areas, those of the Middle Creek Project upstream from Clear Lake, and those along Cache Creek near the Yolo Bypass. The Cache Creek Settling Basin and adjoining levees are important SPFC facilities that reduce sediment transport into the Yolo Bypass.

- The Middle Creek and Tributaries Project (see Figure 3-1) upstream from Clear Lake reduces flood risk for the town of Upper Lake, adjoining agricultural land, Highway 20, and several county roads. The project includes about 14.4 miles of levees (see O&M Manual SAC506.2), diversion structures, and a pumping plant. A design freeboard of 3 feet was provided for all levees. Levees exist along Poge Creek/Alley Creek (2,800 cfs design capacity based on the O&M manual), and Clover Creek (500 cfs design capacity). A diversion structure on Clover Creek diverts flood flows to a leveed diversion channel (8,000 cfs design capacity) to Middle Creek. Levees exist along Middle Creek (19,000 and 21,500 cfs design capacities) and Scott Creek (11,000 cfs design capacity). Downstream from Scott Creek, Middle Creek (27,000 cfs design capacity) has only a left-bank levee (see O&M Manuals SAC506. 2 and SAC506.3). A pumping plant (see O&M Manual SAC506.1) is located at Bloody Island to discharge (130 cfs capacity) drainage water from a 3.1-square-mile area from behind project levees into Middle Creek. During low flow, flow direction can be reversed to provide irrigation water from Middle Creek. The left-bank levee continues to Clear Lake. Through its history, the project has been maintained at times by the Lake County Flood Control and Water Conservation District, Lake County Watershed Protection District, and DWR. Since 2000, the project has been operated and maintained by Lake County and DWR. Lake County is responsible for operating and maintaining the Upper District (facilities north of the confluence of Scott Creek) and DWR is responsible for operating and maintaining the Lower District (Maintenance Area 17—from Clear Lake north to the confluence of Scott Creek).
- Lower Cache Creek has SPFC levees (see O&M Manual SAC126) beginning at high ground about 1.5 miles west of Interstate 5 near Woodland. The design capacity is 30,000 cfs, based on the O&M manual. The right-bank levee leading to the Cache Creek Settling Basin is about 6 miles long and the left-bank levee is about 8 miles long. The levees are intended to reduce the flood risk to Woodland and adjoining agricultural lands. The facilities are maintained by DWR through Sacramento Maintenance Yard.
- East and west training levees (see O&M Manual SAC120), each about 2.5 miles long, direct flows toward the southern end of the Cache Creek Settling Basin. In addition, the embankments and spillway forming the Cache Creek Settling Basin (see O&M Manual SAC120) are about 7.5 miles long. The purpose of the settling basin is to control debris and sediment that would otherwise flow into the Yolo Bypass and compromise its capacity. The O&M manual recognized that the deposition of sediment could not be predicted in advance. The east training levee is designed to be periodically breached to regulate deposition of sediment within the basin. Discharge from the basin directly enters the Yolo Bypass. The settling basin has been modified several times since its original construction in 1937. In 1991, the basin was enlarged to provide 50-year storage capacity. The basin was authorized and designed with a spillway to the Yolo Bypass to be raised 6 feet when the sediment trapping efficiency of the basin was reduced to a predetermined level. This was estimated to occur around 2017. The facilities are maintained by DWR through Sacramento Maintenance Yard.

Relocated Willow Slough

SPFC facilities include relocation of Willow Slough to the Willow Slough Bypass with levees along the excavated channel (see O&M Manual SAC120). The bypass is intended to reduce the risk of flooding to the City of Davis. A diversion weir is located at the point of bifurcation of the original and relocated channels. Based on the O&M manual, the design capacity of the relocated channel is 6,000 cfs with 3 feet of freeboard at the upstream end, gradually increasing to 6 feet at the Yolo Bypass. The right-bank levee extends about 7.4 miles from high ground to the Yolo Bypass. The left-bank levee extends about 7.6 miles from high ground to the Yolo Bypass. The mouth of Willow Slough is now about 5.5 miles south of the

original channel. The project is maintained by DWR through Sacramento Maintenance Yard.

Putah Creek

SPFC facilities (see O&M Manual SAC119) include channel improvements and levees. Based on the O&M manual, the design channel capacity is 62,000 cfs with 3 feet of freeboard from high ground to the Yolo Bypass. Freeboard gradually increases from 3 feet at the upstream end to 6 feet at the Yolo Bypass. The project includes clearing the Putah Creek channel from the highway bridge at Winters to a point about 1 mile upstream from the Interstate 80 crossing of Putah Creek. From that, point 1 mile upstream from Interstate 80, the project includes channel excavation and clearing to the Yolo Bypass and right- and left-bank levees. The facilities are intended to reduce flood risk to southern portions of Davis and adjoining agricultural lands. Maintenance is conducted by DWR through Sacramento Maintenance Yard.

Cache Slough and Lindsey Slough

SPFC facilities include levees along sloughs and land tracts near the terminus of the Yolo Bypass. The design capacity of the Lindsey Slough discharge to the Yolo Bypass is 43,500 cfs with 3 feet of freeboard, based on O&M manuals. Levees, maintained by RD 2060, RD 2068, RD 2093 and RD 536, include the following:

- Back levee (see O&M Manual SAC109) from RD 2068 and RD 2098
- Levees around Peters Tract (see O&M Manual SAC108)
- Levees around Hastings Tract (see O&M Manual SAC107)
- North and south levees of Egbert Tract (see O&M Manual SAC106)

Yolo Bypass

The Yolo Bypass begins at Fremont Weir (see O&M Manual SAC157 and description under Section 3.2.5). SPFC facilities include levees on the right and left sides of the bypass.

- From Fremont Weir to the Knights Landing Ridge Cut, the design capacity of the Yolo Bypass is 343,000 cfs with 6 feet of freeboard, based on O&M manuals. The right-bank levee (see O&M Manual SAC127) is about 2 miles long and is intended to reduce flood risk to adjacent agricultural land. Maintenance is performed by DWR through Sacramento Maintenance Yard. The Knights Landing Ridge Cut, with a design capacity of 20,000 cfs, enters the right side of the Yolo Bypass along this reach. The left-bank levee (see O&M Manual SAC123) is about 4 miles long and is intended to reduce flood risk to adjacent agricultural land in RD 1600. Maintenance is conducted by RD 1600.
- Based on O&M manuals, the design capacity increases to 362,000 cfs from the Knights Landing Ridge Cut to Cache Creek. There is a right-bank levee for the Yolo Bypass between the Knights Landing Ridge Cut and the Cache Creek Settling Basin, but it does not show in the O&M manuals as an SPFC facility. The left-bank levee (see O&M Manual SAC123) is about 2 miles long and is intended to reduce flood risk to adjacent agricultural land in RD 1600. Maintenance is conducted by RD 1600.
- From Cache Creek to the Sacramento Bypass, the design capacity of the Yolo Bypass is 377,000 cfs with 6 feet of freeboard, based on O&M manuals. SPFC facilities in this reach include levees along both sides of the bypass. The right-bank levee (see O&M Manual SAC121) is about 6.4 miles long and is intended to reduce flood risk to agricultural land in RD 2035 and Woodland. Maintenance of the levee is conducted by RD 2035. The left-bank levee (see O&M Manual SAC122)

The Yolo Bypass conveys flood flows east of Sacramento

is about 6.1 miles long and reduces flood risk to adjacent agricultural land. Maintenance of the left-bank levee is conducted by RD 1600. Design inflow to the Yolo Bypass from the Sacramento Bypass is 112,000 cfs, based on the O&M manual.

- From the Sacramento Bypass to Putah Creek, the design capacity of the Yolo Bypass is 480,000 cfs with 6 feet of freeboard, based on O&M manuals. SPFC facilities in this reach include levees along the sides of the bypass. The right-bank levee (see O&M Manuals SAC119, SAC120, and SAC121) is about 5.2 miles long. Willow Slough, with a design flow of 6,000 cfs, enters the Yolo Bypass within this reach. The left-bank levee (see O&M Manual SAC116) is about 7 miles long and is intended to reduce flood risk to West Sacramento. The right-bank levee of the bypass is maintained by RD 900 and DWR through Sacramento Maintenance Yard, and the left-bank levee is maintained by RD 900. The Yolo Basin Wetlands (see O&M Manual SAC521, Vic Fazio Yolo Wildlife Area) is located within this reach and lies over the bypass channel. It provides about 3,700 acres of wildlife habitat, including permanent wetlands, seasonal wetlands, grassland/uplands, and riparian woodland. The California Department of Fish and Game operates and maintains the wildlife area in accordance with USACE requirements. The Sacramento Deep Water Ship Channel, completed in 1963, narrowed the channel of the Yolo Bypass and impacted the design profile. The west levee of the ship channel replaced the function of the left levee of the Yolo Bypass. The Deep Water Ship Channel levees are maintained by USACE, and are not part of the SPFC because DWR or the Board did not provide assurances of nonfederal cooperation for them and they are not listed in Section 8316 of the CWC.
- From Putah Creek to the Sacramento River, the Yolo Bypass has a design capacity of 490,000 cfs with 6 feet of freeboard, based on O&M manuals. SPFC facilities include right- and left-bank levees. The SPFC right-bank levee (see O&M Manuals SAC106, SAC107, and SAC109) begins about 7 miles downstream from Putah Creek and extends about 13 miles to the Sacramento River in the Delta, near Rio Vista. Along this reach, Cache Slough and Lindsey Slough enter the Yolo Bypass. The levee is intended to reduce flood risk to adjacent agricultural land. Maintenance is conducted by RD 536, RD 2060, RD 2098, and RD 2068. The left-bank levee (see O&M Manuals SAC105 and SAC113) extends about 23 miles to the Sacramento River. Along this reach, Miners Slough has a design inflow of 10,000 cfs from a series of Delta sloughs that are distributary from the Sacramento River. Maintenance is conducted by RD 501 and RD 999. The Sacramento Deep Water Ship Channel narrowed the channel of the Yolo Bypass and impacted the design profile. The west levee of the ship channel replaced a portion of the left levee of the Yolo Bypass. As stated previously, the Deep Water Ship Channel levees are maintained by USACE, and are not part of the SPFC.
- Liberty Island, Little Holland Tract, Prospect Island, Little Egbert Tract, and other lands surrounded by non-SPFC private levees lie within the bypass near its southern end. The levees, generally limited in height, restrict low flows in the Yolo Bypass, but overtop during high discharges. Levees on Liberty Island and a portion of Little Holland Tract failed from Yolo Bypass flows in 1995 and 1998, and the lands have remained flooded since that time.

3.2.5 Sacramento River Watershed

The previous sections describe the main tributaries that provide flow directly to the Sacramento River or divert flow away from the river. This section completes the description of SPFC facilities within the Sacramento River Basin in an upstream-to-downstream direction. Figures 3-9, 3-10, and 3-11 show SPFC facilities in the main stem of the Sacramento River watershed.

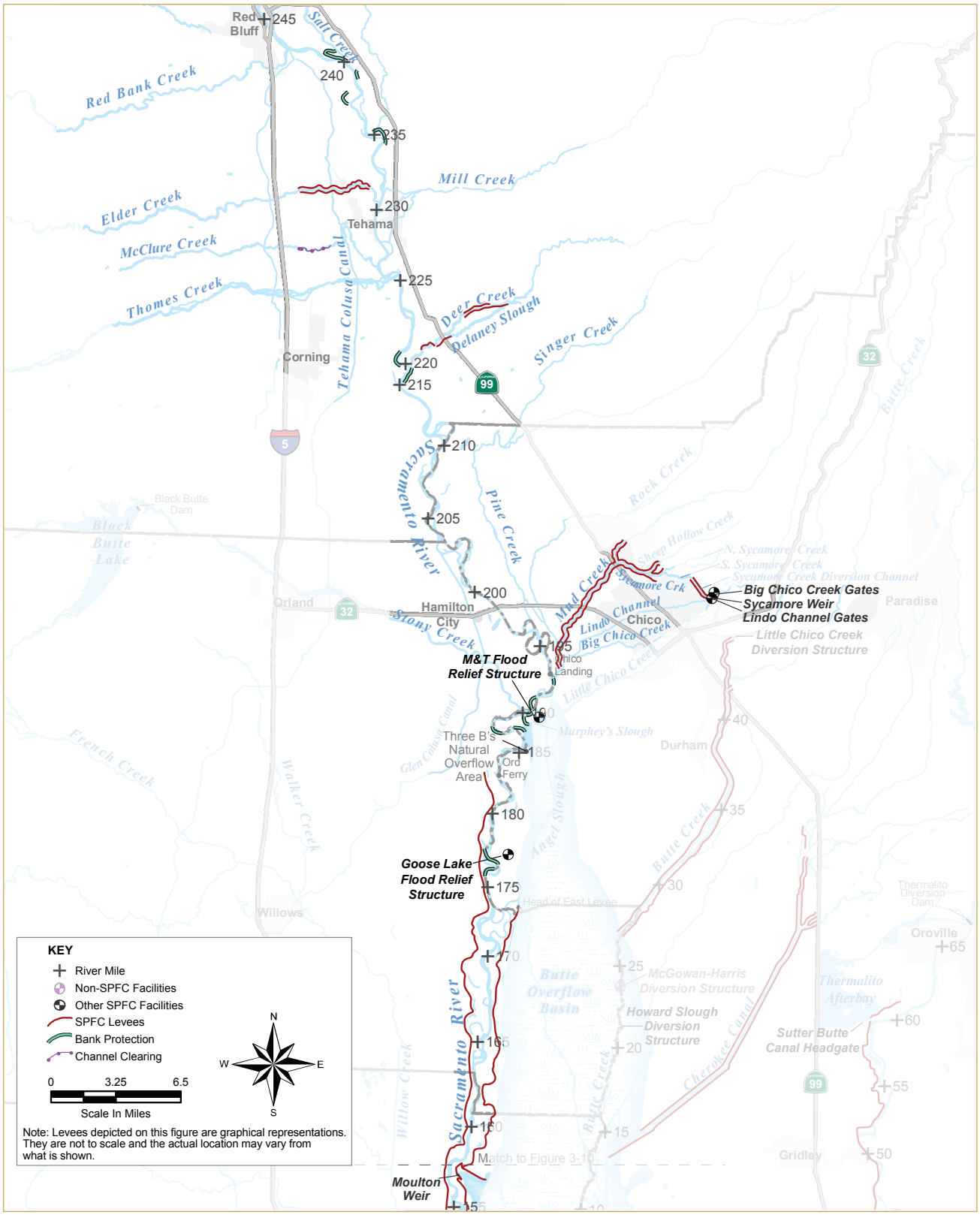

Figure 3-9. Main Stem Sacramento River Watershed – State Plan of Flood Control Facilities Along the Sacramento River and Certain Tributaries from Red Bluff to Moulton Weir

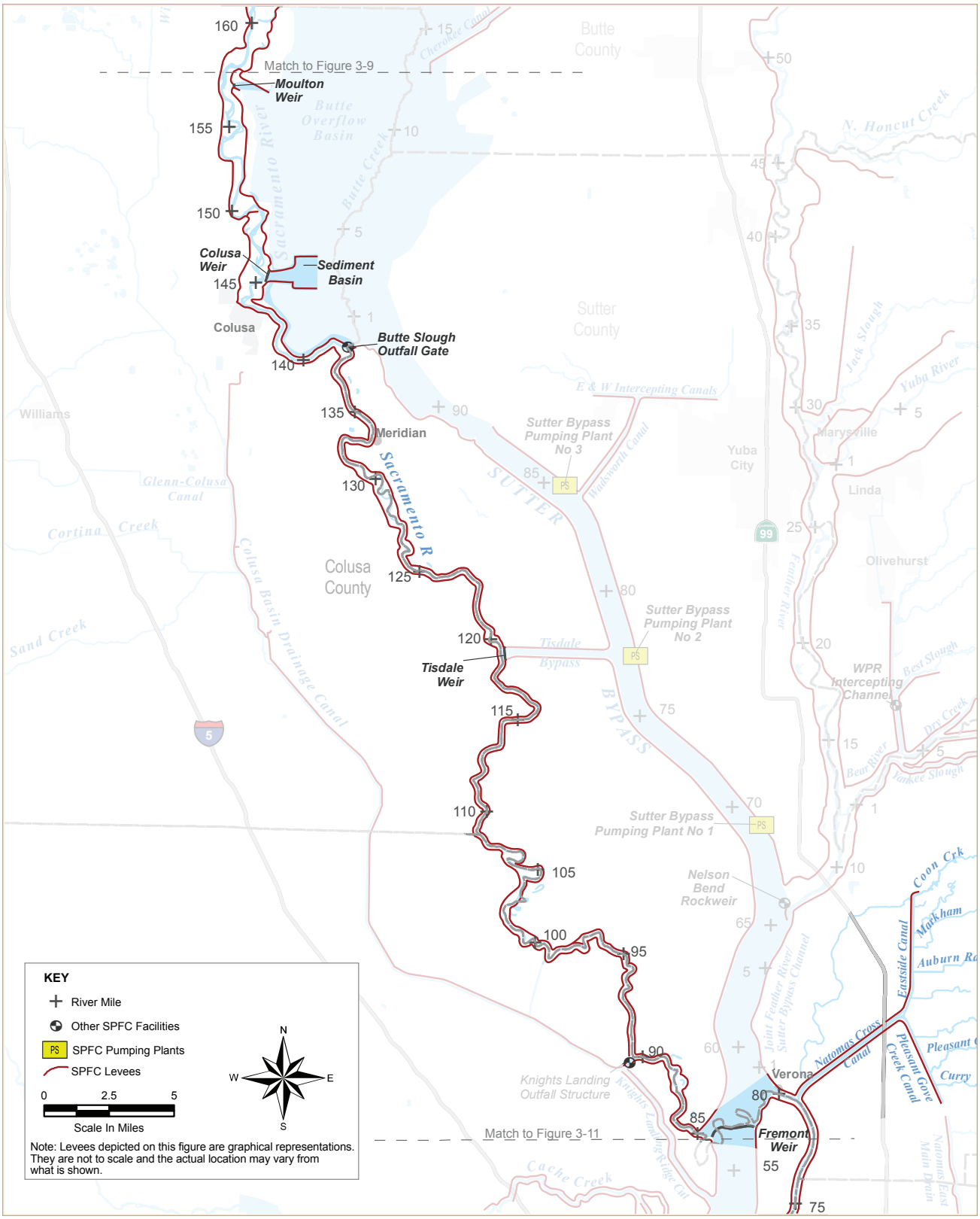

Figure 3-10. Main Stem Sacramento River Watershed – State Plan of Flood Control Facilities Along the Sacramento River from Moulton Weir to Fremont Weir

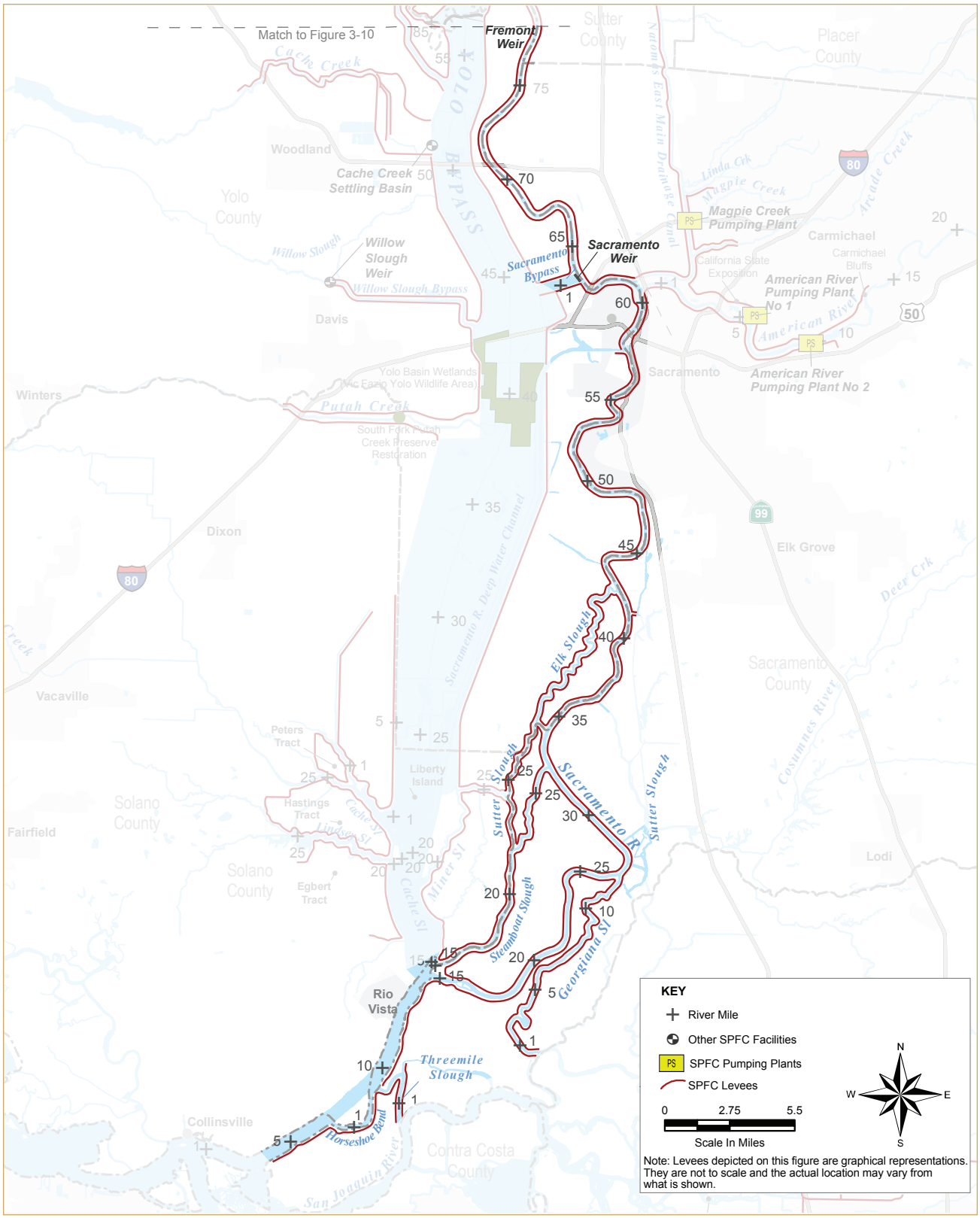

Figure 3-11. Main Stem Sacramento River Watershed – State Plan of Flood Control Facilities Along the Sacramento River and Certain Tributaries and Distributaries from Fremont Weir to Collinsville

Ash and Dry Creeks at Adin

SPFC channel clearing and snagging (see O&M Manual SAC503) was conducted over about 1 mile of Ash Creek downstream from Highway 299 and Dry Creek from its confluence with Ash Creek to a point about 900 feet upstream. The project (see Figure 3-1) is intended to reduce flood risk to the town of Adin in Modoc County about 80 miles northeast of Redding. Ash Creek drains into the Pit River, which drains into Shasta Lake. The project is maintained by the Adin Community Services District.

Sacramento River Tributaries Between Red Bluff and Chico Landing

There are several SPFC improvements along tributaries to the Sacramento River between Red Bluff and Chico Landing; none of these improvements is connected to the SPFC levee system that begins downstream at Ord Ferry.

- Salt Creek enters the Sacramento River about 4 miles downstream from Red Bluff. Channel clearing and shaping (see O&M Manual SAC513) of Salt Creek from its confluence with the Sacramento River to about 1.7 miles upstream is intended to reduce flood risk to residences on the east side of Salt Creek as well as agricultural land. The Tehama County Flood Control and Water Conservation District maintains the project.
- Elder Creek enters the Sacramento River about 12 miles downstream from Red Bluff. SPFC improvements (see O&M Manual SAC510) include channel clearing for about 1.25 miles upstream from the Sacramento River and an adjacent leveed channel reach. The left-bank levee is about 4.1 miles long and the right-bank levee is about 4 miles long. The design capacity of the leveed channel is 17,000 cfs with 3 feet of freeboard, based on the O&M manual. The improvements are intended to reduce flood risk to the town of Garber, adjacent agricultural land, several highways, and a railroad. The Tehama County Flood Control and Water Conservation District maintains the project.
- McClure Creek is located in Tehama County. The creek drains from west to east toward the town of Tehama, about 13 miles south of Red Bluff. SPFC improvements (see O&M Manual SAC511) include channel clearing along an 8,700-foot-long reach from about 1 mile upstream from U.S. Highway 99 to 0.7 miles downstream from the highway. The improvements are intended to reduce flood risk to the town of Tehama to the north, bridges for Highway 99, several county roads, and adjacent agricultural land to the south. The Tehama County Flood Control and Water Conservation District maintains the project.
- Deer Creek enters the Sacramento River about 21 miles downstream from Red Bluff. SPFC improvements (see O&M Manual SAC509) include channel clearing and levees along Deer Creek. The design capacity of the channel is 21,000 cfs with 3 feet of freeboard, based on the O&M manual. Channel clearing extends from upstream of Delany Slough to the Sacramento River. The right-bank levee is about 1.5 miles long. The left-bank levee extends about 4.3 miles, in two segments, from high ground to the Sacramento River floodplain. The facilities were designed to reduce flood risk to the town of Vina and adjacent agricultural land. The Tehama County Flood Control and Water Conservation District maintains the project.

Sacramento River from Red Bluff to Chico Landing

SPFC facilities, including bank protection sites (see O&M Manual SAC512), extend intermittently along a 50-mile reach of the Sacramento River between Red Bluff (River Mile 244) and Chico Landing (River Mile 194). Because of the meandering nature of the river in the reach, USACE identified locations that needed improvement to prevent movement of the river onto adjoining lands.

Specific works completed along this stretch were documented in letters from USACE that are included in Exhibit C of O&M Manual SAC512. Some of the river miles listed in the letters used an older system with numerical values that were approximately 50 to 52 miles less than the current system. For example, River Mile 141.2 in the old system is classified as River Mile 193.12 in the new system. The specific works are listed below and the old river mileage system is identified, where necessary.

- River banks were shaped and stone protection was placed on the left bank of the Sacramento River at Site No. 8, River Mile 183.4 (old river mileage system); Site No. 9, River Mile 183.9